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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/732,840	12/10/2003	Colin Richard Wilson	RD28081-3	6696

7590 08/02/2005  
General Electric Company  
CRD Patent Docket Rm 4A59  
Bldg. K-1  
P.O. Box 8  
Schenectady, NY 12301

EXAMINER
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KEANEY, ELIZABETH MARIE

ART UNIT	PAPER NUMBER
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2882

DATE MAILED: 08/02/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/732,840

Applicant(s)

WILSON ET AL.

Examiner

Elizabeth Keaney

Art Unit

2882

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 18 May 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5, 6, 8, 9, 11 and 12 is/are rejected.
- 7) ☒ Claim(s) 4, 7 and 10 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☒ Certified copies of the priority documents have been received in Application No. 09/682494.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

Remarks and Amendments filed 18 May 2005 have been entered.

#### ***Response to Arguments***

Applicant's arguments filed 18 May 2005 have been fully considered but they are not persuasive.

In response to applicant's argument that Schild (US Patent 5,828,727) is directed towards reducing the impact of the back-scattered electrons on the x-ray window rather than providing a more focused electron beam path in an x-ray source, as described by the instant invention, a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. See *In re Casey*, 370 F.2d 576, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 312 F.2d 937, 939, 136 USPQ 458, 459 (CCPA 1963).

Applicant argues that Schild fails to disclose an accelerating electrode.

The Examiner respectfully disagrees. Schild discloses, in figure 1 and throughout the disclosure, the use of a Wehnelt electrode (4) which accelerates the electrodes toward the anode (10) after passing through a focusing electrode (19). Accordingly, Schild teaches an accelerating electrode and the rejection is maintained.

In response to applicant's argument that Schild fails to teach a selectable shaped aperture and Chidester et al. (US Patent 6,438,207; hereinafter Chidester) merely discloses a system for generating multiple focal spots, the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981).

In response to applicant's argument that Schild and Chidester fail to teach directing the electron beam from the cathode through a selectable shaped aperture in an accelerating electrode and Danos (US Patent 5,029,195) merely discloses systems and methods for optimizing x-ray emission with a sweeping and non-sweeping pencil beam, flat or broad beam, the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981).

***Claim Rejections - 35 USC § 102***

Art Unit: 2882

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 11 is rejected under 35 U.S.C. 102(b) as being anticipated by Schild (US Patent 5,828,727).

Schild discloses, in figure 1 and throughout the disclosure, an x-ray source comprising:

- means for generating an electron beam (5);
- means for accelerating electrons (4) in the electron beam away from the generating means; and
- means for generating x-ray beams (10) when the electron beam impinge thereon at a low angle (column 4, line 8).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1,3 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schild in view of Chidester et al. (US Patent 6,438,207; hereinafter Chidester).

Re claims 1 and 5: Schild discloses, in figure 1 and throughout the disclosure, an x-ray source comprising:

- a cathode (5) for generating an electron beam (ES);
- an accelerating electrode (4) comprising an aperture through which the electron beam from the cathode passes;
- an anode (10) positioned so that the electron beam impinges thereon at an acute angle (column 4, line 8).

However, Schild fails to teach or fairly suggest the aperture of the accelerating electrode to be selectable.

Chidester discloses an accelerating electrode having a selectable aperture (column 10, lines 5-6).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the accelerating electrode of Schild to have a selectable aperture because it controls electron distribution and intensity on the anode at the focal point, thereby improving the x-ray emission (Chidester; column 10, lines 8-10).

The Examiner notes that the method step of claim 1 merely requires the operation of the structure included in claim 5 and is therefore anticipated for the same reason.

Re claim 3: Schild discloses, in figure 1 and throughout the disclosure, the focal spot (BF) formed on the outer periphery of the anode (10) surface.

Art Unit: 2882

Claims 2 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schild and Chidester as applied to claims 1 and 5 above, and further in view of Danos (US Patent 5,029,195).

Schild as modified by Chidester teach all the limitations as shown above.

However, they fail to teach or fairly suggest the acute angle being at most about twenty degrees.

Danos discloses impinging the electron beam on the anode surface at an angle between 1-5 degrees (column 2, lines 3-4).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to impinge the electron beam of Schild and Chidester at an angle of at most twenty degrees because it optimizes x-ray deflection and decreases heat produced by the anode (Danos; column 1, lines 43-47).

Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Schild as applied to claim 11 above, and further in view of Danos.

Schild teaches all the limitations as shown above.

However, Schild fails to teach or fairly suggest the acute angle being at most about twenty degrees.

Danos discloses impinging the electron beam on the anode surface at an angle between 1-5 degrees (column 2, lines 3-4).

Art Unit: 2882

It would have been obvious to one of ordinary skill in the art at the time the invention was made to impinge the electron beam of Schild at an angle of at most twenty degrees because it optimizes x-ray deflection and decreases heat produced by the anode (Danos; column 1, lines 43-47).

Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Schild and Chidester.

Schild as modified by Chidester teach all the limitations as shown above.

However, they are silent as to the system the x-ray source is used in.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the x-ray source within an imaging system comprising the source coupled to a gantry and a detector because it would improve the emission of x-rays from the source.

Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Schild and Chidester as applied to claim 8 above, and further in view of Danos.

Schild as modified by Chidester teach all the limitations as shown above.

However, they fail to teach or fairly suggest the acute angle being at most about twenty degrees.

Danos discloses impinging the electron beam on the anode surface at an angle between 1-5 degrees (column 2, lines 3-4).



Art Unit: 2882

It would have been obvious to one of ordinary skill in the art at the time the invention was made to impinge the electron beam of Schild at an angle of at most twenty degrees because it optimizes x-ray deflection and decreases heat produced by the anode (Danos; column 1, lines 43-47).

***Allowable Subject Matter***

Claims 4,7 and 10 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: As set forth in the previous Office Action.

***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

Art Unit: 2882

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elizabeth Keaney whose telephone number is (571)272-2489. The examiner can normally be reached on Monday, Tuesday, Thursday, Friday 7:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ed Glick can be reached on (571)272-2490. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
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